REMARKS

I. Status of Application

Claims 1 and 11 are pending in this application. By this amendment, claims 1 and 11 have been amended and claims 3 and 4 have been cancelled. In view of the above amendments and the following remarks, reconsideration is respectfully requested.

II. Rejections under 35 U.S.C. § 103(a)

A. Claim 1

Claim 1 has been rejected under 35 U.S.C. §103(a) as being unpatentable over JP-08-075666 to Uchida *et al.*, (hereinafter "Uchida") in view of U.S. Patent 4,525,741 to Chahal *et al.* (hereinafter "Chahal"), U.S. Patent 5, 917,602 to Bonewitz *et al.* (hereinafter "Bonewitz") and JP 09-160982 to Suzuki *et al.* (hereinafter "Suzuki"). This rejection is respectfully traversed.

Claim 1 has been amended to include a determining means for determining whether each work board exits out of each manufacturing process at a scheduled exit time calculated based on the entry time measured by said time-measuring means. The specification describes this determining means on page 10, lines 11-18 and page 11, lines 13-15. Claim 1 has additionally been amended to include and clarify features previously set forth in canceled claims 3 and 4.

Even if combined, the references applied in the Office Action would not have resulted in the invention of claim 1. The Office Action states that the primary reference, Uchida, discloses a sampling control means for controlling the image data sampling of the line sensor. However, Uchida fails to disclose a sampling control means for controlling timing of the image data sampling of the line sensor as required by claim 1. In contrast, Uchida controls the scan period of a line sensor camera and not the timing of image data sampling.

Uchida further fails to disclose an identifying means for identifying the work board and the image data thereof based on a process number representing each manufacturing process, and on times of entry and exit of the work board into and out of the process measured by said time-measuring means. As will be further explained below, the other applied references also fail to disclose this feature.

Uchida further fails to disclose a transmitting means for assigning each work board its own transmission channel for sequentially transmitting images of the board on each

manufacturing process, assembling said image data into a transmission packet and transmitting said transmission packet. None of the applied references discloses the claimed transmitting means.

As noted in the Office Action, Uchida also fails to disclose multiple other features defined in claim 1. The Office Action contends that these other features are disclosed by Chahal, Bonewitz, and Suzuki.

With regard to Suzuki, the Office Action states that Suzuki discloses a plurality of manufacturing processes, a detecting means for detecting entry and exit of the work boards into and out of the manufacturing process, a time measuring means for measuring times of detection of entry and exit, and an identifying means for identifying the work board based on a process number and on times of entry and exit.

In the invention of claim 1, the system is able to determine that image data collected in each surface inspecting apparatus is that of a work board that has passed through an immediately preceding step. The immediately preceding step is identified on the basis of the installed position of the surface inspecting apparatus. The image data managing equipment performs the identification based on the time data identifying the entry and exit of the work board in and out of the measuring process.

Thus, in accordance with the invention of claim 1, image data managing components associate the work board identified by the time data with the image data collected by the surface inspecting apparatus in real time for each board.

In contrast, Suzuki implements standard time information concerning progress of production. Based on the standard time information, the time data acquired by each terminal is retrieved and the acquired state data is associated with the time data as set forth in column 18 of Suzuki.

Furthermore, the work board of Suzuki is identified only by pallet numbers placed on each pallet and read by bar code readers 29-34. See paragraph 27 of Suzuki. Claim 1 explicitly requires that an identifying means for identifying the work board and the image data thereof, makes the identification based on a process number representing each manufacturing process, and on times of entry and exit of the work board into and out of the process measured by said

time-measuring means. This limitation has not been addressed in the Office Action. Suzuki lacks the identifying means as set forth in claim 1.

Additionally, Suzuki lacks the claimed connection-type transmission system in which an image data transmission channel is provided for each work board. This transmission system enables changes in all of the data to be grasped on the same screen on a real-time basis. In contrast, Suzuki employs a local area network system as shown in FIG. 2 and does not provide an image data transmission channel for each work board.

As set forth in claim 1, a transmitting means assigns each work board its own transmission channel for sequentially transmitting images of the board on each manufacturing process, assembling said image data into a transmission packet and transmitting said transmission packet. This subject matter was originally included in claim 4 and was rejected in the Office Action based on U.S. Patent No. 4,817,177 to Shimizu.

Shimizu fails to disclose separate channels for each work board as set forth in claim 1. The Office Action references FIG 1 and its accompanying description in Column 3, lines 28-49. At most, Shimizu discloses two separate channels 1 and 2 for simultaneously sending image data on the first channel and clock signals on the second channel between each image reading device A, B, C, and D. In contrast, claim 1 requires separate transmission channels for each work board on each manufacturing process. The use of a separate channel for each work board ensures that there is no possibility that a packet will overlap with any other packet during a transmission period. See page 25, second full paragraph for a full explanation of the advantages of assigning a separate transmission channel to each work board.

As set forth above, all of the references, even if combined, fail to disclose each and every feature of the invention independent claim 1. In order to make out a prima facie case of obviousness, the references cited by the Examiner must provide all of the elements of the invention as claimed and a suggestion to combine the disclosures of the various cited art references to make the claimed invention. *In re Geiger*, 815 F.2d 686,688 2 USPQ2d 1276, 1278 (Fed. Cir. 1987); *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

Furthermore, in order to make a prima facie case of obviousness, a teaching or suggestion of the combination must be found in the prior art. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438

(Fed. Cir. 1991). Also, if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

The currently disclosed invention has an objective of sequentially acquiring image data related to colors of each work board as a result of individual processing steps, and detecting the states of change. In contrast, the primary reference, Uchida aims to measure steel boards and to find abnormal portions in a single steel board. The abnormal portions could include minute bumps or dents. Accordingly, since Uchida is not involved with sequential processing operations for multiple objects, Uchida would not have benefited from inclusion of a velocity measuring means for measuring roller velocity as taught by Bonewitz. Furthermore, the invention of Uchida would not have been enhanced, improved, or expanded by the inclusion of features taught by Suzuki, since Suzuki is directed to multiple processes and Uchida is not. The features referenced from Suzuki would not have facilitated the objectives of the Uchida reference.

Because the references, even if combined, do not disclose each and every feature of the invention, and because it would not have been obvious to combine the references in the manner suggested in the Office Action, the references fail to render obvious the invention of claim 1. Accordingly, withdrawal of the rejection is respectfully requested.

B. Claims 3 and 11

Claims 3 and 11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Uchida in view of Chahal, Bonewitz, and Suzuki as applied to claim 1, and further in view of U.S. Patent 6,421,458 to Michael *et al.* (hereinafter "Michael"). This rejection is respectfully traversed.

Claim 3 has been cancelled rendering the rejection moot with respect to claim 3. With regard to claim 11, Michael fails to obviate the above-noted deficiencies of the base references. Accordingly, the combination of references fails to render obvious the claimed invention. Withdrawal of the rejection is therefore respectfully requested.

C. Claim 4

Claim 4 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Uchida in view of Chahal, Bonewitz, and Suzuki as applied to claim 1, and further in view of U.S. patent 4,817,177 to Shimizu. Claim 4 has been canceled and incorporated into claim 1 rendering this rejection moot. Shimizu is thoroughly discussed above with respect to claim 1.

III. Conclusion

Applicant believes that all claims are now in condition for allowance and withdrawal of all rejections is respectfully requested. If the Examiner believes that a telephone conversation would advance the prosecution of this application, she is invited to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized to charge any additional fees that are required or credit any overpayment to Deposit Account No. 19-2112 referencing Attorney Docket No. HIAS.95176.

Respectfully submitted,

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Kerry H. Owens
Reg. No. 37,412

SHOOK, HARDY & BACON LLP
600 14th Street, N.W., Suite 800
Washington, D.C. 20005-2004
Tel.: (202) 783-8400
Fax: (202) 783-4211